UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,008	04/08/2008	Axel Buendia	50368	1064

1609   7590   03/01/2011
ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.
1300 19TH STREET, N.W.
SUITE 600
WASHINGTON,, DC 20036

EXAMINER
COUGHLAN, PETER D

ART UNIT	PAPER NUMBER
2129	

MAIL DATE	DELIVERY MODE
03/01/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/562,008	BUENDIA ET AL.
	Examiner	Art Unit	
	PETER COUGHLAN	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2005*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

1.   Claims 1-42 are pending in this application.

Claim Rejections

2.   Claim 1 is rejected under 2173.05(m) Prolix. This claim does not distinctly point out specific claim elements. This claim is a long recitation and that the metes and bounds of the claimed subject matter cannot be determined.

35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-42 are rejected under 35 U.S.C. 101 for nonstatutory subject matter.

The method claims recited do not pass the machine-transformation test.

The portions of the opinions in State Street and AT&T relying <u>solely</u> on a "useful, concrete and tangible" result analysis should no longer be relied on. Ex parte Bilski, Appeal No. 2007-1130 (Fed. Cir. October 30, 2008).

The court has said that there's a two-pronged test to determine whether a software of business method process patent is valid: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing. In other words, pure software or business method patents that are neither tied to a specific machine nor change something into a different state are not patentable. Ex parte Bilski, Appeal No. 2007-1130 (Fed. Cir. October 30, 2008).

> *The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies §101 either by showing that his claim is tied to a **particular** machine, or by showing that his claim transforms an article. See Benson, 409 U.S. at 70. Certain considerations are applicable to analysis under either branch. First, as illustrated by Benson and discussed below, the use of a specific machine or transformation of an article must impose **meaningful limits on the claim's scope** to impart patent-eligibility. See Benson, 409 U.S. at 71-72. Second, the involvement of the machine or transformation in the claimed process must **not** merely be insignificant extra-solution activity. See Flook, 437 U.S. at 590. (See In re Bilski, 88 USPQ2d at 1396, emphasis added.)*

The claimed invention needs to pass the machine-transformation test.

The Examiner maintains there is no suggestion of a machine or no transformation with the statement, an automatic method for decision-making. The claimed invention needs to pass the machine-transformation test.

The Examiner maintains there is no suggestion of a machine or no transformation with the statement, a virtual or physical according to external variables coming from an environment described by a numerical model or by physical sensors. The claimed invention needs to pass the machine-transformation test.

The Examiner maintains there is no suggestion of a machine or no transformation with the statement, variables internal to the agent described by numerical parameters. The claimed invention needs to pass the machine-transformation test.

The Examiner maintains there is no suggestion of a machine or no transformation with the statement, decision-making means controlling the actions of said agent. The claimed invention needs to pass the machine-transformation test.

The Examiner maintains there is no suggestion of a machine or no transformation with the statement, characterised in that said decision-making means determines the parameters of at least one action of said agent. The claimed invention needs to pass the machine-transformation test.

The Examiner maintains there is no suggestion of a machine or no transformation with the statement, according to at least some of the internal or external variables, said operation of determining the parameters of an action being carried out by several decision subprocesses which are each a function of at least some of said external and internal variables. The claimed invention needs to pass the machine-transformation test.

The Examiner maintains there is no suggestion of a machine or no transformation with the statement, dealing with a limited part of the general decision problems, the parameters determined by each of said subprocesses being processed in order to construct the set of action parameters controlling said agent. The claimed invention needs to pass the machine-transformation test.

The specification does not mention the words, computer, CPU or medium.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:
        A person shall be entitled to a patent unless –

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7, 11, 12, 14, 15, 17, 19-21, 23, 24, 26-30, 32-38 are rejected under 35

U.S.C. 102(a) (hereinafter referred to as **Stephens**) being anticipated by Stephens,

'Modelling Fish Behaviour.'

Claim 1

Stephens discloses an automatic method for decision-making by (**Stephens,** p71

c1; Decision making of applicant maps to decision tree of Stephens.) a virtual or

physical agent (**Stephens,** abstract; virtual agent of applicant maps to artificial fish of

Shephens.) according to external variables coming from an environment described by a

numerical model or by physical sensors (**Stephens,** abstract; External variables coming

from an environment of applicant maps to sensory input from the environment of

Stephens.), and variables internal to the agent described by numerical parameters

(**Stephens,** p73 c1; Internal to the agent of applicant maps to fish motivation of

Stephens. Numerical parameters of applicant maps to the example of time between

meals of Stephens. Parameters of applicant maps to parameters of Stephens.), and

decision-making means controlling the actions of said agent (**Stephens,** p71 c1;

Decision making controls the agent of applicant maps to decision tree based action

selection mechanism of Stephens.), characterised in that said decision-making means

determines the parameters of at least one action of said agent (**Stephens,** p73 c1;

'Decision-making means determines the parameters of at least one action of said agent'

of applicant maps to how much food a fish needs to eat of Stephens.), according to at

least some of the internal or external variables, said operation of determining the

parameters of an action being carried out by several decision subprocesses which are

each a function of at least some of said external and internal variables (**Stephens,** p73

c1; Several decision subprocesses of applicant maps to fish's energy level, appetite,

digestion rate of Stephens.), and dealing with a limited part of the general decision

problems, the parameters determined by each of said subprocesses being processed in

order to construct the set of action parameters controlling said agent. (**Stephens,** p73

c1; 'Subprocesses being processed in order to construct the set of action parameters

controlling said agent' of applicant maps to fish's energy level, appetite, digestion rate of

Stephens. This in turn affects the 'hunger' model which is part of the motivation.

Controlling the agent of applicant maps to function of motivation of Stephens.)

Claim 2

Stephens discloses characterised in that some internal variables are numerical

values representing perception. (**Stephens,** p74 c1; Perception of applicant maps to

the function of the perception module. 'Numerical values' which are part of perception of

applicant is inherent to a module which is part of a artificial fish of Stephens.)

Claim 3

Stephens discloses characterised in that some internal variables are numerical

values representing motivation. (**Stephens,** p73 c1; Motivation of applicant maps to

motivation of Stephens. 'Numerical values' which are part of motivation of applicant is

inherent to a model which is part of a artificial fish of Stephens.

Claim 4

Stephens discloses characterised in that some external variables are numerical

values representing opportunity. (**Stephens,** p72 c2; External variables are numerical

values representing opportunity of applicant maps to fish will choose to join the larger of

two schools when given the opportunity of Stephens.)

Claim 5

Stephens discloses characterised in that calculation of the parameters,

motivations and opportunities is performed by a tree of processing blocks, each

processing block corresponding to a function receiving input variables comprising some

of the internal variables, and external variables and output variables of one or more

upstream processing blocks. (**Stephens,** p71 c1 and figure 3; Tree of processing blocks

of applicant maps to decision tree of applicant. External variables of applicant maps to

environment of Stephens. Motivation and opportunity processing blocks of applicant

maps to the perception and motivation processing blocks of Stephens. Internal variables

of applicant maps to the computation within each block and exchanging outputs of the

blocks within the autonomous fish of Stephens.)

Claim 6

Stephens discloses characterised in that said processing blocks comprise logical

operators, expert systems and mathematical operators. (**Stephens,** p75, c2, p76 c2;

Logical operators of applicant maps to '<' of Stephens. Mathematical operators of

applicant maps to '+' of Stephens. Expert systems of applicant maps to chaining which

is disclosed in state machine models of Stephens.)

Claim 7

Stephens discloses characterised in that it comprises a means of interrupting

said parameter-determining operation consisting of controlling the action of the agent

with the parameters determined using the subprocesses processed before the

interruption. (**Stephens,** abstract; Interrupting parameter determining operation of

applicant maps to the current environment input of Stephens. If a change in the

environment which determines a change within the agent, then this change occurs with

the behavioural rules of Stephens.)

Claim 11

Stephens discloses characterised in that said interruption means is controlled by

a function of the master system. (**Stephens,** figures 8a-b; Master system of applicant

maps to shark state machine or fish state machine of Stephens. Interruption with the

shark is determined by 'IsFull, ~IsFull, IsHungry, ~IsHungry' of Stephens. Interruption

with the fish is determined by 'IsScared, ~IsScared' of Stephens.)

Claim 12

Stephens discloses characterised in that it comprises steps for interrogating the

master system after each determination of a parameter set for an action, and for

activating said interruption means according to the response of the master system to

this interrogation. (**Stephens,** figures 8a-b, p73, c1; Parameter set for an action of

applicant maps to a fish energy level, appetite and digestion rate of Stephens,

Activating said interruption means according to the response of the master system to

this interrogation of applicant maps to by altering these parameters a predator fish can

be made to appear greedy by constantly being on the hunt for large amounts of food of

Stephens.)

Claim 14

Stephens discloses characterised in that it comprises means of recording the state of the calculation trees, actuators and subprocesses at the time of the interruption, and means for continuing the decision process using the recorded information. (**Stephens,** p76 figures 8a-b; 'Recording the state of the calculation trees, actuators and subprocesses at the time of the interruption' of applicant is inherent to Stephens due to the state machines would not function is a previous state was not recorded. 'Continuing the decision process using the recorded information' of applicant is inherent too the state machines of Stephens. If a shark is in 'hunt' mode and enough prey is eaten, then the interruption occurs and 'IsFull' takes place. The 'continuation of the decision process' of applicant maps to the state matching leading to 'wander' of Stephens.)

Claim 15

Stephens discloses characterised in that several agents are controlled from a common decision model, said decision model comprising a means of recording the information specific to each agent. (**Stephens,** p72, c2; 'Characterised in that several agents are controlled from a common decision model' of applicant maps to 'When seeing a predator schooling fish will decrease their distance from each other and their movements become more synchronised' of Stephens.)

Claim 17

Stephens discloses characterised in that it comprises means of processing

logical dependencies between the subprocesses. (**Stephens,** p73 c1; Several decision

subprocesses of applicant maps to fish's energy level, appetite, digestion rate of

Stephens. These are all logical dependencies of motivation of Stephens.), and

Claim 19

Stephens discloses characterised in that it carries out the processing of multi-

valued external variables originating from different perceived objects of the

environment. (**Stephens,** p75, c1; Examples of multi-valued external variables

originating from different perceived objects of the environment of applicant maps to

perception, vision, collision detection of Stephens.)

Claim 20

Stephens discloses characterised in that the output values of a processing block

are memorised during the processing cycle if they are used by another subprocess.

(**Shephens,** p76 figures 8a-b; 'Memorised' of applicant equates to recording the state of

applicant on a smaller domain. It is inherent that the output values are 'memorised' due

to the state machines would not function without these values being recorded till

changed of Stephens.)

Claim 21

Stephens discloses characterised in that said output values are recorded in a memory common to several processing blocks. (**Shephens,** p76 figures 8a-b; 'Output values are recorded' of applicant is inherent to Stephens due to the state machines would not function is a previous state was not recorded.)

Claim 23

Stephens discloses characterised in that it comprises a means of implementing a behavioural detail level. (**Stephens,** ; 'Behavioural detail level' is only mentioned in ¶0027 and not described at all within the specification. 'Behavioural detail level' of applicant maps to the details of 'hunger' which lead to energy level, appetite and digestion rate of Stephens.)

Claim 24

Stephens discloses characterised in that it comprises a convergent adaptation mechanism irrespective of the nature of the learning signal. (**Stephens,** p78 c1; 'Adaptation mechanism irrespective of the nature of the learning signal' of applicant maps to 'locomotion training so the animal can learn the most efficient way to move' of Stephens.)

Claim 26

Stephens discloses characterised in that it comprises means of grouping and recording memories consisting of information corresponding to perceptions or to

calculation tree results. (**Stephens,** p73, c1; Grouping of applicant maps to the different

attributes of hunger of Stephen. Recording memories of applicant maps to the current

values on energy level, appetite, and digestion rate of Stephen.)

Claim 27

Stephens discloses characterised in that it comprises a step of grouping

memories in the form of strata. (**Stephens,** p73, figure 3; In the form of a strata of

applicant maps to the strata design of the fish architecture of Stephen.)

Claim 28.

Stephens discloses characterised in that it comprises a recognition step

consisting of selecting the active memories. (**Stephens,** p73, c1; Active memories of

applicant maps to the current values on energy level, appetite, and digestion rate of

Stephen.)

Claim 29

Stephens discloses characterised in that it comprises an operation of creating a

new memory in the case of absence of perfect recognition. (**Stephens,** p75, c1; In the

case of absent of perfect recognition of applicant can be viewed as a function of

optimisation of applicant maps to 'This method has a complexity O(n) but can be

optimized through the use of localization techniques of Stephens. 'Influences' of

applicant maps to 'vision' of Stephens.)

Claim 30

Stephens discloses characterised in that it comprises an operation of updating the active memories by replacing the memorised information by the state of the calculated information. (**Stephens,** p76 figures 8a-b; 'updating the active memories by replacing the memorised information by the state of the calculated information' of applicant is inherent to the machine state to operate. For example in figure 8a, if the shark is in the state 'hunt' it will remain there till ~IsFull is reached. Then the shark 'updates' its status with 'wander' of Stephens.)

Claim 32

Stephens discloses characterised in that it comprises means of connection between the memories and the actuators of the stratum. (**Stephens,** p73, figure 3; 'memories and the actuators of the stratum' of applicant maps to the connections between the blocks of the fish architecture of Stephens.)

Claim 33

Stephens discloses characterised in that the connection is performed by virtue of generic calculation trees, common to all the memories and using the information of the memory. (**Stephens,** p73, figure 3; 'Generic calculating trees' of applicant maps to the archetype of the fish architecture of Stephens.)

Claim 34

Stephens discloses characterised in that it comprises means of linking between the memories for the creation of influences between the memories. (**Stephens,** p73, figure 3; 'Linking between the memories for the creation of influences between the memories' of applicant maps to the memory of 'perception' and the memory from 'motivation' leading into 'behavioural selection' of Stephens.)

Claim 35

Stephens discloses characterised in that it comprises a step of propagating influences between the memories by means of links. (**Stephens,** p73, figure 3; 'Links of applicant maps to the one ended arrows within the fish architecture of Stephens.)

Claim 36

Stephens discloses characterised in that it comprises optimisation of updates of influences limited to the influences which have undergone a change. (**Stephens,** p75, c1; Optimisation of applicant maps to 'This method has a complexity O(n) but can be optimized through the use of localization techniques of Stephens. 'Influences' of applicant maps to 'vision' of Stephens.)

Claim 37

Stephens discloses characterised in that it comprises a step of transmitting modified information to the rest of the decision model. (**Stephens,** p73, figure 3;

Transmitting the information of applicant maps to the function of the one ended arrows

within the fish architecture of Stephens.)

Claim 38

Stephens discloses characterised in that it comprises a means of transmitting

modified information by the creation of a virtual object. (**Stephens,** p73, figure 3; If the

modified information can be transmitted then it is inherent that the virtual object exists.)

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was
> made.

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Stephens as applied to claims 1-7, 11, 12, 14, 15, 17, 19-21, 23, 24, 26-30, 32-38

above, in view of Niescier. (U. S. Patent 6266751, referred to as **Niescier**)

Claim 13

Stephens does not disclose expressly characterised in that it comprises means

of arranging the subprocesses in decreasing order of activation.

Niescier discloses characterised in that it comprises means of arranging the

subprocesses in decreasing order of activation. (**Niescier,** C3:25-37; 'arranging the

subprocesses in decreasing order of activation' of applicant maps to 'A control circuit

assigns a first sub-plurality of the contiguous memory banks in increasing order from the

lowest addressable end to a first memory map of the first processing agent, and assigns

a second sub-plurality of the contiguous memory banks in decreasing order from the

highest addressable end to a second memory map of the second processing agent' of

Niescier.) Stephens and Niescier are analogous art because they form same field of

endeavor of agents. At the time of the invention it would have been obvious to a person

of ordinary skill in the art using dynamic memory for agent demands. The

suggestion/motivation for doing so would have been efficient computational costs of an

agent. Therefore, it would have been obvious to combine Niescier with Stephens for the

benefit of dynamic memory and ranking to obtain the invention as specified in claim 13.

Claim 16

Stephens does not disclose expressly characterised in that it does not comprise

steps for dynamic memory allocation during the processing of the decision model.

Niescier discloses characterised in that it does not comprise steps for dynamic

memory allocation during the processing of the decision model. (**Niescier,** title;

'dynamic memory allocation during the processing of the decision model' of applicant

maps to 'Continuously sliding window method and apparatus for sharing single-ported

memory banks between two agents' of Niescier.) Stephens and Niescier are analogous

art because they form same field of endeavor of agents. At the time of the invention it

would have been obvious to a person of ordinary skill in the art using dynamic memory

for agent demands. The suggestion/motivation for doing so would have been efficient

computational costs of an agent. Therefore, it would have been obvious to combine

Niescier with Stephens for the benefit of dynamic memory and ranking to obtain the

invention as specified in claim 16.

Conclusion

6.   The prior art of record and not relied upon is considered pertinent to the

applicant's disclosure.

   -Search terms, Buendia, predator, prey, perception, motivation, opportunity

   -'Towards digital creatures in real time 3d games': Buendia

   -'SAM: a model to design computational social agents': Bouron

7.   Claims 1-42 are rejected.

   No art has been found for claims 8-10, 18, 22, 25, 31, 39-42.

Correspondence Information

8.   Any inquiry concerning this information or related to the subject disclosure should
be directed to the Examiner Mr. Peter Coughlan, whose telephone number is (571) 272-
5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45
p.m.

         If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's
supervisor Mr. Jeffrey Gaffin can be reached at (571) 272-4146. Any response to this
office action should be mailed to:

         Commissioner of Patents and Trademarks,

         Washington, D. C. 20231;

Hand delivered to:

         Receptionist,

         Customer Service Window,

         Randolph Building,

         401 Dulany Street,

         Alexandria, Virginia 22313,

         (located on the first floor of the south side of the Randolph Building);

or faxed to:

         (571) 272-3150 (for formal communications intended for entry.)

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. C./   /Wilbert L. Starks, Jr./
                                                             Primary Examiner, Art Unit 2129
Examiner, Art Unit 2129

2/23/2011